



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS: Katsuhisa Aratani and Takashi Veno

ATTORNEY DOCKET NO.: 09792486-0100

PRIOR ATTORNEY DOCKET NO.: P99,2247

SERIAL NO.: 09/429,719 GROUP ART UNIT: 1753

FILED: October 29, 1999 EXAMINER: R. McDonald

TITLE: THIN FILM FORMATION, USE SPUTTERING TARGET MATERIAL, THIN FILM FORMED USING SAME, AND OPTICAL RECORDING MEDIUM.

Affidavit Under 37 CFR 1.131

BOX Non Fee Amendment  
Assistant Commissioner for Patents  
Washington, D.C. 20231

SIR:

We, Katsuhisa Aratani and Takashi Veno, (herein after 'We' or 'Affiant') hereby declare as follows:

1. We are the named inventors of the subject matter that is claimed and for which a patent is sought on the invention entitled THIN FILM FORMATION, USE SPUTTERING TARGET MATERIAL, THIN FILM FORMED USING SAME, AND OPTICAL RECORDING MEDIUM, having the serial no. 09/429,719, and filed on October 29, 1999.

2. In the Office Action having a mailing date of July 24, 2000, the Examiner presented the reference Nee (U.S. 6,007,889) as prior art under 35 U.S.C. 102(e) and 35 U.S.C. 103 to reject pending claims 1 and 2.

3. We have reviewed and understand the contents of the cited patent Nee.

4. This written document is an affidavit of prior invention to overcome the cited patent Nee. As the only inventors of the subject matter of the rejected claims, we hereby submit this oath to overcome Nee.

**I. Showing of Facts Through Document Evidence**

5. Below are facts that show a conception of the invention on or before the June 22, 1998 filing date of Nee coupled with due diligence from such conception to a subsequent actual reduction to practice or to the October 5, 1998 filing of the Japanese counterpart to the present invention (constructive reduction to practice).

6. Exhibit A and Exhibit B are English translations of invention reports submitted by us to Sony Corporation, our employer and the assignee of the 09/429,719 application. The invention reports are original disclosure document exhibits. A photocopy of the English translations form part of this affidavit as Exhibit A and

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Exhibit B. The submission dates of Exhibit A and Exhibit B have been redacted from the exhibits.

**A. Facts establishing conception**

7. In general, the facts of Exhibit A are hereby incorporated by reference. Moreover, we present the following facts to establish a conception of the invention on or before the June 22, 1998 effective date of Nee.

**1. Conception**

8. The basic inventive concept of the application is the use of a silver-palladium alloy as a reflective layer in an optical recording medium to maintain high reflectivity and improve corrosion resistance (Original Application, page 3, line 21 - page 4, line 3). Exhibit A is a compilation of information reported well before June 22, 1998 and discloses this inventive concept as the theme on page 1-2 and in the "draft for claims" on page 6.

9. The Examiner presented Nee as teaching a silver-palladium alloy having from about 0.1 atomic percent to about 15 atomic percent palladium and from about 85 atomic percent to about 99.9 atomic percent silver. The Examiner also suggests that Nee teaches the addition of copper or rhodium to the silver-palladium alloy in an amount from about 0.01 atomic percent to about 10.0 atomic percent. Our conception of more narrow ranges is represented in Exhibit A, page 6, in the "draft for claims."

10. Exhibit A also discloses that the reflectance values of the silver palladium alloys were measured at wavelengths of 650 nm and 780 nm. (page 3).

11. Exhibit A further discloses a film thickness of 1000 Angstroms for the silver-palladium alloy.

12. The details of Exhibit A support conception of the claimed invention. Thus, the scope of this affidavit is commensurate with the scope of the claimed subject matter.

**2. Effective date of Nee**

13. As indicated on the face of the Nee patent, the date on which Nee was available as prior art under 35 U.S.C. 102(a) or (e) was June 22, 1998, namely, the U.S. filing date of Nee. Accordingly, the date to overcome is June 22, 1998.

**3. On or before the effective date of Nee**

14. We allege that the acts relied upon to establish the date on or before Nee occurred on or before June 22, 1998.

**B. Facts establishing reduction to practice**

15. In general, the facts of Exhibit B are hereby incorporated by reference. Moreover, we present the following facts to establish a reduction to practice.

## 1. Actual reduction to practice

16. After conception of the invention on or before June 22, 1998, we tested the invention to establish its capacity to successfully perform its intended purpose. Exhibit B represents an invention report that discusses the results from experimentation undertaken during a time period extending approximately two months from the compilation of data in Exhibit A to the reduction of Exhibit B supporting the inventive concept on pages 7-10 and the method of producing the invention on pages 13-15.

17. Exhibit B discloses the results from the addition of palladium to the silver alloy in the amounts of 0.3%, 1.0%, 2.5%, and 5.0% by volume. The experiments confirmed that the alloy improved weather resistance and that the addition amount of palladium to alloy was inversely proportional to the reflection ratio. For example, in a wavelength range of less than 780 nm, the reflection ratio is lowered by about 1.0 to 15.0%.

18. Exhibit B further discloses the results from the addition of 0.1 to 3.0% by volume of a second element to the silver-palladium alloy having palladium in an amount of 0.1 to 3.0% by volume. Experiments showed that the reflection ratio was restrained to about 2.0 to 3.0%.

19. Exhibit B discloses two methods of producing a silver alloy including a dissolution method in an atmosphere and a melting method in a vacuum. The steps are set out on pages 13-15 in Exhibit B.

## 2. Constructive reduction to practice

20. We allege that the present application for a U.S. patent claims the same invention disclosed in a Japanese application filed on October 5, 1998.

21. Therefore, constructive reduction to practice was achieved on October 5, 1998, the filing date of the Japanese counterpart to the present application.

## C. Facts establishing reasonable diligence

22. We present the following facts to establish that there was reasonable diligence from on or before the June 22, 1998 effective date of Nee to the actual reduction to practice of Exhibit B or alternatively to the October 5, 1998 filing date of the Japanese counterpart to the present invention (constructive reduction to practice).

23. As noted above, conception occurred on or before the June 22, 1998 filing date of Nee. Moreover, actual reduction to practice occurred on or before July 16, 1998. We assert that there was reasonable diligence from conception to reduction to practice.

24. The invention report of Exhibit B is a draft patent application. Experiments had been performed prior to this date and were subsequently incorporated into the document. From the time of conception, we diligently worked to obtain experimental results to support the conception. Accordingly, there was reasonable diligence from on or before the June 22, 1998 filing date of Nee to the invention report of Exhibit B.

25. Alternatively, the time period taken for completion of the application for foreign filing constitutes reasonable diligence. During this time period, Affiant and Affiant's representatives worked reasonably hard and expeditiously to prepare, execute,

and file an application in Japan. Accordingly, there was reasonable diligence from on or before the June 22, 1998 filing date of Nee to the October 5, 1998 filing of the application of the present invention in Japan.

## II. Allegations and other statements

26. We allege that the acts relied upon to establish the date on or before Nee were carried out in Japan.

## III. Signatures and Declaration in Lieu of Oath Under 37 CFR 1.68

27. We hereby declare that the statements made of our own knowledge are true and that all statements made on information and belief are believed to be true. We acknowledge that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

Katsuhisa Aratani 15, Aug, 2001  
Katsuhisa Aratani Date

Takashi Ueno 22, Aug, 2001  
Takashi Ueno Date